

ADDITIONAL DOCUMENTS

Student Lab Sheet: Windmills and Work

Name: _____ Class / Period: _____

Instructions:

1. Read this entire lab sheet.
2. Form a hypothesis about your windmill's ability to do work. Write it down in the space below.
3. Assign responsibilities to team members, such as wind technician, windmill technician, and timekeeper/recorder.
4. Conduct your experiment.
5. Record your data in the chart on the back of this page.
6. Make a line graph of your data using the grid on the back of this page.
7. Discuss your results.
8. Answer the rest of the questions below.

Hypothesis:

Record and graph your data on the back of this page. Then continue below.

Do your data support your hypothesis? Explain your conclusion:

In science, _____ is done when a force acts on an object as the object moves from one place to another.

Is your windmill capable of doing work? Why or why not?

When _____ is done on an object, the object gains _____.

Match the work done on an object with the form of energy gained by the object:

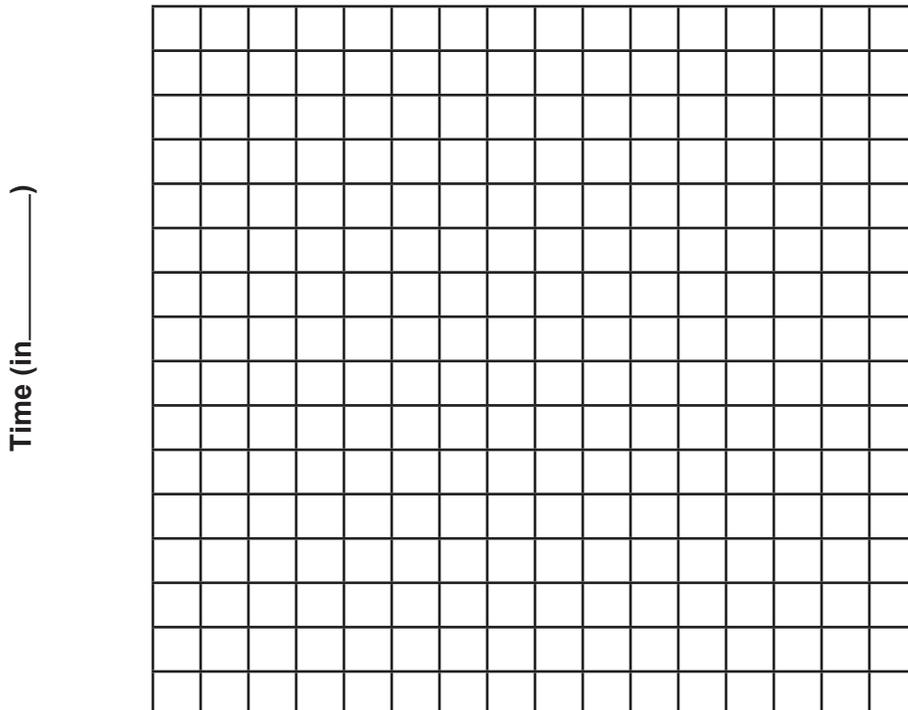
- | | |
|--|----------------------|
| If a machine lifts pennies from floor to table, the pennies gain | motion energy |
| If you swing a hammer, the hammer gains | thermal energy |
| If you rub your hands together briskly, your hands gain | gravitational energy |

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Student Lab Sheet: Windmills and Work *(Continued)*

Number of Pennies	Trial #1 (seconds)	Trial #2 (seconds)	Trial #3 (seconds)	Average of Trials (seconds)	Change in Time* (seconds)
0					0
1					
2					
3					
4					
5					
6					
7					
8					

* In the last column, enter how much longer your windmill took to lift this weight than it took to lift no weight:
 Change in Time = (average seconds with X pennies) - (average seconds with 0 pennies)



Work Performed (number of pennies lifted)